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ABSTRACT

Debates and policies in the late 1950s and early 1960s regarding the United States-Soviet space race are described in this paper, and an analysis is presented of press coverage of President John F. Kennedy's public statements regarding space technology and exploration. The first sections of the paper present a selected space chronology from 1957 to 1975, describe debates that occurred between 1957 and 1961 regarding the proper role for the U.S. in view of Russia's successes in space exploration, show how increasing pressure was placed on Kennedy in 1960 and 1961 to make a critical decision about the U.S. space program, and tell how efforts were begun between the Soviets in space. The paper then reports on an analysis of the coverage by three major U.S. newspapers of 11 public statements in which Kennedy referred to space technology and exploration and also to the Soviet Union. Among the conclusions reported are: (1) there was no obvious relationship between newspaper coverage of space-related issues and the space-related issues discussed by Kennedy: (2) Kennedy emphasized U.S. space efforts and U.S.-Soviet space cooperation, while the newspapers focused on Soviet space achievements and on the U.S.-Soviet space race; and (3) most newspeper items mentioned national prestige. (GT)

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A Selected Space Chronology

10/4/57	Sputnik I, (184 lbs.), first earth satellite in orbit (U.S.S.R.)
11/3/57	Sputnik II, (1,120 lbs.), carried a live dog, "Laika," world's first space passenger.
1/31/58	Explorer I, 1st U.S. satellite, launched.
3/17/58	Vanguard orbited, U.S.A.
1/4/59	Lunik I orbited sun. U.S.S.R.
9/12/59	Lunik II hit moon. U.S.S.R.
10/4/59	Lunik III circled moon. U.S.S.R.
3/11/60	Pioneer 5 orbited sun. U.S.A.
8/12/60	Echo I (123 1/2 lbs.) orbited. U.S.A.
4/12/61	First manned orbital flight. Yuri A. Gagarin. U.S.S.R.
4/20/61	Kennedy memo to Johnson: "Is there any space program which promises dramatic results in which we can win?"
4/22/61	NASA responded to Johnson: "There is a chance for the United States to land a man on the moon and return him to earth if a determined national effort is made."
4/29/61	Wernher von Braun (NASA) letter to Kennedy: "We have a sporting chance of sending a 3-man crew around the moon ahead of the Soviets (and) an excellent chance of beating the Soviets to the first landing of a crew on the moon (including return capacity, of course)."
5/5/61	First American in space. Suborbital flight of Alan B. Shepard in Freedom 7.
5/25/61	President Kennedy addressed Congress on urgent national needs, asking for manned visit to moon and return before decade was out.
6/3,4/61	Kennedy, Khrushchev met in Vienna; U.S.S.R. veto of cooperative moon venture.
7/21/61	Virgil I. Grissom suborbital flight. U.S.A.
8/6/61	Gherman Titov in Vostok II spent more than 24 hours in space. U.S.S.R
9/25/61	President Kennedy addressed United Nations, proposed U.S.-U.S.S.R. cooperation in space weather prediction, communications.
2/20/62	John H. Glenn, Jr., first American in orbital flight, Friendship 7.

5/24/62	M. Scott Carpenter, 3 orbit mission. U.S.A.
8/31/62	Communications Satellite Act. Called for establishment with other nations of a commercial satellite system for improved global communications.
6/16/63	First woman space traveler, Valentina V. Tereshkova, U.S.S.R.
9/20/63	Second Kennedy speech to United Nations. Stressed cooperation with U.S.S.R. in going to moon.
11/22/63	Kennedy assassinated in Dallas, Texas.
1/25/64	Echo II (565 lbs.) orbited. First satellite used in cooperation with U.S.S.R.
2/17/65	Ranger 8 (809 lbs.) crashed into moon after photographic successes. U.S.A.
5/9/65 10/4/65 12/3/65	Russian Luna 5, 7, and 8, designed for soft moon landings, crashed into lunar surface.
8/10/66	Lunar Orbiter I photographed closeups of the moon. U.S.A.
12/21/68	Three U.S. astronauts made roundtrip to moon.
5/18/69	Three-man moon orbital flight, descended to within 9 miles of the moon. U.S.A.
7/20/69	Landed exploration of the moon's Sea of Tranquility by Neil A. Armstrong and Edwin E. Aldrin, Jr., while Michael Collins orbited moon.
7/15/75	U.S.S.R. Soyuz XIX and U.S. Apollo 18 joined in earth orbit.

Space or Peace Race?

> "...On October 4, 1957, America introduced a new car, the Edsel, with a fancier grill and more lights, while the Russians hurled their first satellite into orbit."
> (Markmann and Sherwin, 1961, p. 34.)

President Dwight D. Eisenhower reportedly reacted to news of the Soviet Sputnik I success with the statement "it does not raise my apprehensions, not one iota." His chief assistant, Sherman Adams, said the Eisenhower Administration was not interested in running up "a high score in an outer space basketball game" (Hartke and Redding, 1962, p. 187). In 1962, even after the U.S. was committed to an ambitious space program, Eisenhower warned against "...a mad effort to win a stunt race" (Cirino, 1971, p. 252).

In the late 1950s and early '60s, many within the United States disagreed with the Eisenhower Administration's point of view regarding the value of space exploration. Debates were intense concerning whether or not the U.S.A. was in a period of decline concerning its role in international affairs (Sevareid, 1958). The space successes of the Soviets caused considerable doubt concerning the continued vitality of the U.S. (Neimark, 1957). Many, including NBC television commentator Clifton M. Utley, thought the U.S. had suffered its greatest defeat in its then-182 year history with the launching of Sputnik I and that the U.S. desperately needed to embark upon an all-out effort to regain its reputation as the world's leader in science, in technology, and in military capability (Utley, 1957). Cirino (1971) argues that "most" scientists in the late '50s were opposed to the lunar program and proposals, however.

The national and international press played an important role in carrying the debate, not only through giving visibility to concerns of critics, defenders, and apologists, but also through direct comment in editorials, selection and placement of news articles, messages emphasized in headlines, and the like. As an example of conscious news judgments in the placement of news articles, it was reported that "many news editors, including those on Republican newspapers, made it a practice to display a story that Eisenhower was 'at golf' next to important national or international stories" (Markmann and Sherwin, 1961, p. 34). Such placement of stories suggests a tacit criticism of Eisenhower's slow response to national and world events and issues. Cirino (1971) presents an argument which states that the mass media, especially the major TV networks, major newspapers, giant magazines, and network radio, were grossly biased in favor of the $30 billion space program instituted after mid-1961.

Among the more outspoken critics of what was seen as Eisenhower's malaise position was the pro-Democratic newspaper, the New York Post (Witkin, 1958). Even the staunchly Republican New York Herald Tribune had some unfriendly comments to make about Eisenhower's unperturbed reaction to Soviet successes in space exploration:

> (Eisenhower has failed to recognize) "that the Sputniks have given the Soviets a propaganda victory almost equal to a victory in battle. Only quick and tangible deeds (e.g., our own satellite) can regain some of that lost ground" (Anon., 1958, p. 44).

However, eventually there were Administrative reactions and responses to problems presented by the Soviet Sputniks. These included: "... the

infusion of new scientific brain power at the policy level; the increase of authority for the Pentagon missile chief; the plan for increased sharing of nuclear secrets and materials with NATO allies; the proposal to increase annual missile spending by $2,000,000,000; the proposal for $300,000,000 to stimulate scientific education" (Witkin, 1958, p. 50).

Nevertheless, according to many persons, including Presidential hopeful John F. Kennedy, the response was puny. During the campaign, Democratic nominee Kennedy scolded the Republicans on the issue. For example, in October, 1960 he said: "These are entirely new times, and they require new solutions. The key decision which this (Eisenhower's) administration had to make in the field of international policy and prestige and power and influence was their recognition of the significance of outer space ... The Soviet Union now is first in outer space. ... I want to be ahead of them in rocket thrust" (Sidey, 1964, pp. 114-5). Kennedy, of course, was elected to office. There, as Sidey (1964) notes, "In the President's chair John Kennedy was finding it a hundred times more difficult to cope with this problem than on the stump in Oklahoma City" (p. 115).

Internationally, criticism of the U.S. posture mounted as time went on. For example, Geneva's afternoon daily newspaper, the Tribune de Geneve, satirized the U.S. space effort in light of the Soviet triumph in Yuri A. Gagarin's historic orbital flight of April 12, 1961. The Swiss newspaper ran a photograph of three monkeys in training for a U.S. space flight with a caption reading, "Until now the American savants have succeeded in sending only monkeys into space." All of this was run

under a general headline, "America Beaten" (Bruno, 1979).

During the same period, the New York Times must have exerted some pressure on the Kennedy Administration. For example, an editorial pointed out that "No one in high places or with great influence was able to convince President Eisenhower-and so far, apparently, no one has been able to persuade President Kennedy - of the tremendous political, psychological and prestige importance, entirely apart from scientific and military results, of impressive space achievements" (Bruno, 1979). Hanson Baldwin, military expert of the New York Times, was critical on an explicit level in response to NASA's Administrator James E. Webb's statements given in April, 1961 that the U.S. space effort was not a means of competing with the Soviets, but a means of producing scientific attainment. Baldwin's criticism was blunt: "(It is)...high time to discard this policy. ... In fact ... if the United States is to compete in space, we must decide to do so on a top priority basis immediately, or we face a bleak future of more Soviet triumphs" (Fuller, 1962, p. 217).

After his election, Kennedy established a task force on space policy to review American capabilities in order to make recommendations for future directions. Heading the Ad Hoc Committee on Space was Dr. Jerome B. Wiesner of MIT, who recruited eight individuals to serve on the committee. The full text of their report is contained in Schnapper (1961, pp. 1-11). Five principal motivations were advanced for desiring a "vital, effective space program": (1) national prestige, (2) national security, (3) scientific observation and experiment, (4) practical non-military applications, and (5) international cooperation. These motivations reveal two themes

which seem mutually exclusive: whether the U.S. should cooperate with the U.S.S.R. in space endeavors, or whether the U.S. should compete with the Soviets. Kennedy at various times in his early Administration espoused both points of view, both in public and in private (according to personal accounts by men and women in close contact with Kennedy).

The cooperative theme was clearly the most idealistic and perhaps most doomed to fail. Kennedy's adviser, Dr. Wiesner, recounts Kennedy's mood concerning space at the time he took office:

> "Much of President Kennedy's hopefulness was derived from his conviction that science provided our nation with vast powers for good. In the Inaugural speech, he summed this up with, 'Let both sides seek to invoke the wonders of science instead of its terrors. Together let us explore the stars, conquer the deserts, eradicate disease, tap the ocean depths and encourage the arts and commerce" (Wiesner, 1965, p. 5).

Sorenson (1965) quotes a 1961 Kennedy speech in which the President challenged the Soviet Union "not to an arms race, but to a peace race: to advance together step by step, stage by stage, until general and complete disarmament has actually been achieved..." (p. 519). The future of space exploration, because of the potential for nuclear strikes and spy-in-the-sky capabilities, had become part of the general nuclear disarmament discussions of the early '60s. The olive branch overture for cooperation in space was further made international by President Kennedy in his September 20th, 1961 speech to the General Assembly of the United Nations. There, he said:

> "... in the field of space ... there is room for new co-operation

for further joint efforts in the regulation and exploration of space. Include among these possibilities a joint expedition to the moon. ... Why ... should man's first flight to the moon be a matter of national competition?" (Schwarz, 1964, p. 125).

Why, indeed? The opposing side of the coin also was prominent in Kennedy's thinking of the same period. An April 20th, 1961 memorandum to his Vice President, Lyndon B. Johnson (Chairman of the Space Council) said, in part:

"Do we have a chance of beating the Soviets by putting a laboratory in space, or by a trip around the moon, or by a rocket to land on the moon, or by a rocket to go to the moon and back with a man. Is there any other space program which promises dramatic results in which we could win?"

"I believe we should go to the moon."

In late 1960 and early '61, the country seemed bogged down in a mishmash, patchwork space program which everyone ruefully admitted was far behind the demonstrated successes of the Soviet program. The debate on what to do about the situation, which raged in the newspapers for days, became more that just another debate on space exploration alone. It was linked to other issues, including the very survival of the U.S.A. Increasingly, there was heard the demand for a decision. Sidey (1964) captures the tenor of the times:

"The space technicians began to say that a direct challenge to the Soviets would help focus the energy of the country, now expended carelessly in a welter of overlapping space projects with no clearly defined long-range goals. ... Kennedy caught the feel of it. He summoned his space men. ... What was needed was a presidential

> decision that we should challenge the Russians. It was not impossible to overtake them if we really wanted to. ... Six weeks later (May 25, 1961) the President stood before Congress for a second time in his four short months of holding office. (saying) ... 'Now it is time ... for a great new American enterprise - time for this nation to take a clearly leading role in space achievement, which in many ways may hold the key to our future on earth. ... I believe we should go to the moon.'" (Sidey, pp. 116, 119, 123).

The Soviets eventually rebuffed Kennedy's offer to pool research and "go to the moon together" (June, 1961, Vienna) because as Khrushchev pointed out, the same missiles which would be used in space cooperation were those of military competitiveness (Salinger, 1966). Earlier, in late May, 1961, as if he had anticipated Khrushchev's answer, Kennedy spoke more directly of open competition with the Soviets in remarks prepared for the opening of a debate in Congress on Defense and Armaments:

> "Recognizing the head start obtained by the Soviets with their large rocket engines ... we nevertheless are required to make new efforts on our own. For while we cannot guarantee that we shall one day be first, we can guarantee that any failure to make this effort will make us last" (Mansfield, 1969, p. 88)

The Soviets consistently saw space exploration as a competitive situation. Khrushchev made disparaging references to the first 13 lb. U.S. satellite as "an orange" in comparison to the massive 3,000 lb. Soviet Sputnik III satellite of the same period (Markmann & Sherwin, 1961,

p. 34). Bruno (1979) notes that the Soviets "spoke often enough of Americans arriving on the moon only to be greeted by a Soviet flag" (p. 16).

The Kennedy New Frontiersmen recognized a basic inconsistency in the cooperation/competition themes enunciated concerning the U.S. and U.S.S.R. space programs. Theodore C. Sorenson, special counsel to the late President, summarized the conflict arising from this inconsistency: "Some of Kennedy's own advisers complained that too much cooperation instead of competition would dampen Congressional interest and appropriations" (1965, p. 529). At any rate, after Khrushchev's veto of the moon shot cooperation overture in June, 1961, Kennedy and his advisers must have felt that open competition was the only viable alternative left to the U.S. (Gardner, 1962).

Khrushchev, after his Vienna veto, continued his denegration of the U.S. space effort, "...comparing space progress with the evolution of insects, with his nation in the flying stage and the Americans merely jumping." After the successful Glenn flight of February, 1962, Khrushchev showed a flicker of interest in cooperation, but by that time the U.S. had made its decision to chance the race alone and little was accomplished in terms of cooperative arrangements (Sorenson, 1965, p. 529).

Despite the claims of some historians and social critics that Kennedy was hasty (and wrong) in his decision to commit the U.S. to a space race largely for political advantage (Cirino, 1971; Paper, 1975), behind-the-scenes descriptions of the careful and calculated nature of this very expensive and risky decision have been documented (Fuller, 1962; Sidey, 1964; Wiesner, 1965). The President's speeches and press conferences,

throughout 1961 to November, 1963, continued to address the twin themes of cooperation and competition. As late as his second speech to the United Nations General Assembly, (September 20, 1963), Kennedy again returned to the familiar dual themes. He again invited the Soviets to cooperate in going to the moon. But he seemed to accept the inevitable, competition, which he defined as no less than the ultimate test of truth vs. error, freedom vs. coercion:

> "The contest will continue- the contest between those who envision a monolithic world and those who believe in diversity- but it should be a contest in leadership instead of destruction, a contest in achievement instead of intimidation. Speaking for the United States of America, I welcome such a contest. For we believe that truth is stronger than error- and that freedom is more enduring than coercion. And in the contest for a better life, all the world can be the winner" (Schwarz, 1964, p. 125)

As one of the only upbeat notes of an otherwise day of infamy -- the Dallas assassination day of November 22, 1963 -- the text of Kennedy's prepared remarks show he was beginning to enjoy the first fruits resulting from his crisis decision of early 1961. It was clearly a message of competition:

> "... in today's world, freedom can be lost without a shot being fired, by ballots as well as bullets. The success of our leadership is dependent upon respect for our mission in the world as well as our missiles ... And that is also why we have regained the initiative in the exploration of outer space - making an annual effort greater than

the combined total of all space activities undertaken during the Fifties - launching more than 130 vehicles into earth orbit - putting into actual operation valuable weather and communications satellites - and making it clear to all that the United States has no intention of finishing second in space" (Schwarz, 1964, p. 149).

The Space Decision as a Response to Crisis

Given this historical context, it is useful to consider the Presidential and Congressional decision to become involved in a space race as a response to a crisis. Robinson (1970) reviewed a sizeable body of literature on crisis decision-making and presented a useful three-fold conception of crisis.

First, concern is with identifying the origin of the event (either external or internal for the decision-makers). In this case, the crisis was both internal and external in origin. American technology had perfected the small nuclear warhead bomb which required a less powerful rocket booster, while the Soviets had a larger much heavier warhead requiring much more powerful delivery missiles. Thus, American technology (internal) as compared to Soviet technology (external) had created a situation where the Soviets were more advanced in early space exploration and exploitation because of their booster capabilities originally developed for military purposes (Fuller, 1962). Early successes with Sputnik I, Sputnik II and Sputnik III in the late 1950s (Markmann and Sherwin, 1961) created enormous national and international pressures on the Eisenhower Administration to accelerate the U.S. space program (which were largely ignored or downplayed by Eisenhower). The growing internal pressures created in part by leading American mass media were transferred from the Eisenhower to the Kennedy Administration (Bruno, 1979).

The second element of Robinson's three-fold conception of crisis deals with the decision time available for response (short, intermediate, or long). Unlike the Cuban crisis (requiring rapid response time) which Kennedy faced earlier, the space crisis would be a relatively longterm crisis, the results of which would not be seen for a decade or more. However, if the U.S. was to be an active contender in the race, and given that the country was beginning a lap down from the Soviets, a financial and societal commitment was necessary in a relatively short period of time (budgets were presented and approved on yearly cycles). For these reasons, we would classify the space crisis facing the Kennedy Administration in 1961 as intermediate in terms of decision time available for response.

The final element of the Robinson conception of crisis involves the relative importance of the values at stake to the participants. Internally, some persons and groups in the U.S. did not feel that the U.S. should become involved in the space race. Certainly, the Eisenhower Administration had taken this position. However, the Kennedy Administration placed great importance on the value of the effort in making their decision. The bipartisan support given Kennedy's proposals in terms of budget allocations also indicates widespread agreement in Congress for the American decision (Hartke and Redding, 1962) articulated by Kennedy on May 25, 1961 ("We should go to the moon"). American public opinion also seemed in favor of the enormous expenditures and efforts which would be necessary in order to achieve this goal. Bruno (1979) summarizes some possible reasons:

> "Most Americans gladly accepted the challenge of the moon race as a surrogate test of whose political system was superior. This

high-stakes clash of competing systems was both real and symbolic, closely resembling American attitudes toward competition in sports. The analogy of American sports, where the goal is "winning at all cost," does not seem too farfetched. Variously described as prestige, pride, or uniqueness, the reasons for the president's moon decision and for the public's eager approval seem rooted deep in the American experience " (p. 16).

In summary, the space crisis was one which can be characterized as both internally and externally created, requiring an intermediate response-decision time, and where the values revolving about the decision were widely perceived as involving the survival and prestige of the country itself in global competition with a formidable ideological foe.

A review of the historical context will show both the context of the research questions and the particular emphasis of the remainder of this paper.

Oct. 1957- May, 1961	Debate: Was the U.S.A. in a period of decline compared to the U.S.S.R. in the scientific area of space exploration and technology?
Nov. 1960 -May, 1961	Pressure: National and international debate via the mass media exerted increasing pressure on the new President to respond with a crisis decision regarding the U.S.A. space program vis-à-vis the U.S.S.R. space program.
May, 1961 - Nov., 1963	Decision: Kennedy decided to make the space program a showcase of the New Frontier, attributed "survival" importance; Congress implemented; U.S.A. began to "catch up" with the Soviets in space. Decision and implementation employed twin themes of cooperation with the U.S.S.R. and competition with the U.S.S.R.
Feb. 1961 - Nov., 1963	Newspaper Coverage of Kennedy's Press Conference Statements and the Space Issue in General (Focus of the study).

Research Questions

One area of interest in this paper centers on the question of media bias. Cirino (1971) presented data from a content analysis which led him to this conclusion:

> "The mass media have had a difficult job to do during the last ten years. They have had to generate and maintain the support of the people for the manned space program in the face of this widespread and substantial opposition by many of society's scholars and statesmen. The media's success in this endeavor of creating and maintaining the necessary public support is as spectacular as the moon landing itself. ... To conceal the great body of scientific and scholarly opposition to the lunar program the news media have used a simple technique - they ignore it" (p. 255).

Cirino does not present reliability reassurances in support of his content analysis and his general language is such that his objectivity is in doubt. While this study cannot address the selective inattention hypothesis concerning media coverage suggested by Cirino, it is concerned with the following aspects of media performance:

1. What emphasis did the newspapers place on space topics, including the themes of U.S.-U.S.S.R. cooperation and competition? Was the emphasis different before Kennedy's May 25, 1961 statement than after? Where were articles placed in the newspaper? What was their size?
2. What emphasis did the newspapers place on five motivations for having a space program (in comparison to Kennedy's stated

motivations)?

3. To what extent was the subject matter of the newspaper items similar or dissimilar to the subject matter of Kennedy's press conference statements?
4. If a perceptible bias was detected, to what extent was the bias in the same direction and tenor as Kennedy's point of view?

Hypotheses

Some of the foregoing questions are presented without specific research hypotheses; the study is intended to be descriptive as well as predictive. Because some events, such as Presidential press conferences, are automatically defined as news (Shaw, 1977), we expect more newspaper coverage of space topics after a Presidential statement than before. An assumption made is that media agendas are judgmental and subject content will vary over time, as confirmed in content analyses discussed by Shaw (1977). Shaw and Clemmer (1977) have stated, "when it comes to the news agenda, not all news topics are created equal. Conflict has the edge" (p. 36). Therefore, we expect newspaper articles to emphasize competitive statements and motivations more than cooperative ones. Because the degree of prominence also is an aspect of agenda-setting, we expect competitive themes to have greater newspaper prominence than cooperative themes. Gans (1979) has stated that U.S. media espouse implicit values in news coverage, including great emphasis on ethnocentrism, altruistic democracy, responsible capitalism, and obedience to leaders. If this is the case, these values suggest that news-

paper coverage of space technology and exploration would be biased in favor of competition with the noncapitalistic Soviets, in favor of pursuing the program to bolster national prestige and security, and would emphasize respect and obedience to the goals of the national leader. Thus, we expect a pro-Kennedy tinge to the newspapers' coverage of the space program, especially after May 25, 1961.

For hypothesis testing, the level of significance chosen to reject a true null hypothesis of no difference or no relationship is .05.

Method

All of Kennedy's public statements regarding space technology and exploration in which he also mentioned the Soviet Union were selected from verbatim transcripts of his press conferences (Johnson, 1978). A random selection of 11 statements was made of the 22 statements. Selected were: five from 1961 (February 8, March 1, April 12 and 21, and October 10), three from 1962 (March 7, 21, and 29), and three from 1963 (July 17, August 20, and October 31).

Three major U.S. newspapers—The New York Times, The Christian Science Monitor, and The Wall Street Journal--were examined in their entirety for three days prior to, the day of, and three days after each of Kennedy's 11 statements. In other words, 77 complete issues of the Times, the Monitor, and the Journal were reviewed for headlined items relating to space technology and exploration (231 newspapers in all).

The 11 Kennedy statements and the relevant newspaper articles (N=375) were content analyzed by trained coders using a coding instrument (Appendix A). Intracoder reliability was tested by having each coder

recode a previously coded item after a period of three days. Intercoder reliability was tested periodically by having different coders code the same items and checking for degree of agreement using Holsti's formula (1969, p. 137). Results of these reliability checks are summarized below: mean intracoder reliability was .92, mean intercoder reliability was .86.

Based on this newspaper sample, no claim is made regarding the generalizability of results to American newspapers as a whole.

Findings

During his Presidency, Kennedy held 65 press conferences. Issues dealing with outer space were discussed in 28 of these conferences. Space issues dealing with both the United States and the Soviet Union were discussed in 22 press conferences. Of these 22 conferences 11 have been analyzed.

Five of these 11 press conferences took place in 1961 and three each in 1962 and 1963.

Of the 11 conferences, one occurred in February, four in March, two in April, one in July, two in August, and one in October. A slightly higher percentage of the articles examined were published after Kennedy's decision to go to the moon (52.3%) than before the decision (47.5%). The difference is not statistically significant (X^2= 0.86631; DF=1; $p<.30$).

Of the 375 newspaper items analyzed, 239 (63.7%) appeared in the Times (3.1 articles per issue on average), 90 (24.0%) in the Monitor (1.17 articles per issue on average), and 46 (12.3%) in the Journal (0.6 articles per issue on average). In addition, 279 (74.4%)

of the newspaper items occurred in 1961, 50 (13.3%) in 1962, and 46 (12.3%) in 1963. Nearly three-quarters (267--71.2%) of the newspaper items analyzed appeared in the newspapers' first section.

Eighty-four (22.4%) of the space-related newspaper items appeared on page one and 49.6% (186 items) of the newspaper coverage appeared in the first seven pages.

Two hundred and thirty-five of the 375 stories analyzed (62.7%) were of a hard-news nature and 75 (20%) were news features. Only 9.9% of the items were what one might term "opinion" items--editorials, columns of opinion, letters to the editor, and editorial cartoons.

More than one-half (195 items, 52%) were between 0 and 200 square centimeters. The mean size was 225.6 cm, standard deviation 192.19, and median 192.25. Newspaper staff writers accounted for most (220 items, 58.7%) of the items analyzed. The Associated Press accounted for an additional 20% (75 items) of the coverage, followed by United Press International (31, 8.3%), other wire services (15, 4%), freelance or "special to" (20, 5.3%) and other sources (14, 3.7%).

Table 1 indicates the 10 topical categories analyzed in both newspapers and press conferences. While the press mentioned Soviet space efforts more than U.S. space efforts (63.5% to 56.8% respectively of items analyzed), the reverse was true of press conferences, where 63.6% of the conferences dealt with U.S. space efforts and 54.6% with Soviet space efforts. By like token, the press published about twice as many "space race" as "space cooperation" items (36.3% to 16.8% respectively), while 72.3% of press conferences dealt with space cooperation and 63.3% with the space race. A Kendall rank order correlation coefficient was

calculated between rankings of newspaper topics in order of mention and rankings of press conference topics in order of mention. The tau, +.09, was not statistically significant.

When one compares the dominant categories mentioned in both press and press conferences, one finds that according to the newspapers, the three dominant categories were (in order): USSR space efforts (32.3%), US space efforts (16.2%), and the US-USSR space race (14.8%). Space cooperation dominated the messages in 7.8% of the instances (see Table 2). The three dominant press conference categories were: US-USSR space cooperation (54.5%), US-USSR space race (36.4%), and US space efforts (9.1%). A Kendall rank order correlation coefficient was calculated between rankings of newspaper topics in order of dominant mention and rankings of press conference topics in order of dominant mention. The tau, +.37, was not statistically significant.

National prestige was the most frequently mentioned (51.7%) motive of space-related newspaper stories (see Table 3). The second most frequently mentioned motive in the three newspapers was scientific observation and experimentation (43.7%). The most frequently mentioned press conference motive was national security (54.6%); the second was national prestige (45.4%). A Kendall tau of +.11 was not statistically significant. There is no relationship between newspaper and press conference rank orderings of possible motives for space exploration.

Table 4 lists the dominant motivations mentioned in newspaper items and in press conferences. The dominant newspaper motivation in space-related stories was national prestige (37.6%). National security was the dominant motivation (36.4%) in the press conferences analyzed. There

appears to be no relationship between press and press conference rank orderings of dominant motives for space exploration. The Kendall tau was +.14.

No appreciable difference was found between the number of space-related newspaper items appearing before the press-conference dates (168, 44.8%) and the number of space-related newspaper items appearing after the press conference dates (166, 44.2%). Slightly less than 11% of the items were published on the same day as the press conferences which were examined.

Table 5 illustrates the degree of prominence which newspapers gave to the topics of space cooperation and space competition. Articles which mentioned space cooperation were slightly more likely to be placed on a page nearer the front, but the difference is not statistically significant. However, the stories tended to be significantly longer when international space cooperation was mentioned. Turning to articles containing mentions of international space competition, these articles were significantly longer and were placed closer to page one. Table 5 also shows that articles which mentioned space competition were nearer the front of the newspaper and were longer than articles mentioning space cooperation.

Coders were instructed to examine newspaper items for bias. In the great majority of instances, coders were unable to detect a perceptible bias (92.3%). In 27 cases, coders felt there was enough evidence to indicate a bias. In these cases, they were asked if the bias was the same as the position taken by President Kennedy, mostly the same, somewhat the same, mostly dissimilar, or completely dissimilar. A slight bias in

favor of the President's position was noted: 3.7% were the same, 7.4% were mostly the same, and 44.4% were somewhat the same. However, 18.2% of the items were coded as mostly dissimilar and 22.2% were judged completely dissimilar.

Coders also were asked to evaluate the subject matter of the newspapers to see to what extent it paralleled the topics of the press conferences. Content was judged the same in 9.6% of the items, mostly the same in 8.5% of the items, somewhat the same in 12.8%, mostly dissimilar in 16.8%, completely dissimilar in 52.0%, and 0.3% could not be coded. As of this writing, no attempt has been made to analyze separately the newspaper articles into pre-press conference, same day as press conference, and post-press conference items.

Conclusions

In some respects, this study has found that there is no obvious relationship between newspaper coverage of space-related issues and space-related issues discussed in Presidential press conferences from 1961 through 1963. For example, whereas 45.4% of the press conferences analyzed took place in 1961, 74.4% of the newspaper stories on space-related issues were reported in that year. Too, where space-related issues usually were not the major topic in the press conferences, many of which dealt extensively with questions of disarmament, space-related items were prominently displayed in the nation's leading newspapers--nearly one-quarter of these items appearing in front-page stories.

Not only did reporting of space-related issues often differ from the treatment given these issues in Presidential press conferences, but where differences occurred they occurred in rather stark fashion. Whereas

the Kennedy press conferences played up U.S. space efforts and U.S.-Soviet space cooperation, newspapers focused on issues such as Soviet space achievements and the U.S.-Soviet space race. Too, most newspaper items contained at least some mention of national prestige.

Thus, with the nation's most respected newspapers focusing on such areas, it perhaps is not surprising that Kennedy would have asked Vice President Lyndon B. Johnson in a memo in 1961, "Is there any space program which promises dramatic results in which we can win?" And, a case might be made that the nation's leading newspapers partially were responsible in forcing Kennedy's hand to urge Congress in 1961 to consider a space flight to the moon (a flight the Soviets had not and still have not attempted) by the end of the decade.

This study has found support for these hypotheses: (1) conflict content was more likely to be reported than cooperative content, and conflict was more prominently reported; (2) ethnocentric themes of national prestige and national security were featured often in space technology and exploration newspaper items during the early 1960s; (3) the small number of newspaper items containing outward bias tended to be similar to that displayed by President Kennedy in his press conference closest in time to the reporting. No support was found for the hypothesis that the newspapers carried more coverage of space technology and exploration topics after a Presidential press conference than before. Throughout the period, the topics were given a high degree of visibility in the three newspapers, usually through news items rather than opinion items.

Rank order correlation coefficients were calculated for the relative extent which newspapers and press conferences mentioned 10 space-related

topics, the relative extent to which these 10 topics were the dominant topic, the relative extent to which five possible motivations for participating in a space program were mentioned, and the relative extent to which the five motivations were dominant. None of these four correlations were statistically significant. There did not appear to be a close relationship between the press coverage and the press conference content concerning these topics and motivations. These findings are reinforced by the deliberate coding of the extent to which newspaper item and press conference emphasis were the same -- and it turned out they were not similar very often.

Suggestion for Future Research

Agenda-setting as a communication research area has been popular since the early 1970s (Severin and Tankard, 1979). The major emphasis of this approach has centered on mass media effects. It asks, "what is the relationship between mass media news and other content and audience use of that content, particularly as it affects audience notions of issue salience?" Expressed by McCombs and Shaw (1977), the central question and hypothesis of agenda-setting is: "Does the press not actually create political and social issues by news choices made day after day? ... the press itself has some power to establish an agenda of political issues which both candidates and voters come to regard as important" (pp. 2-3).

Future agenda-setting studies could dwell not on media-audience interactions, but concentrate on a prior question: who creates the media agenda? The agenda-setting literature relies on the scholarly literature regarding news judgments and decisions made by various media personnel

or "gate-keepers" (see Garrison, 1979, pp. 7-16; 23-32). The assumption is made that media personnel establish their own agenda in terms of what the media will carry. But the mass communication literature also recognizes the importance of nonmedia news sources in defining relevant environmental and societal topics and issues, and the importance of nonmedia sources in gathering and providing cognitive and affective information and opinions to media personnel, who then may choose what will appear in the media (Westley and MacLean, 1955, 1957). Gilberg, Eyal, McCombs, and Nicholas (in press) have examined the argument that a U.S. President exerts a tremendous influence on media personnel as to what agenda they will present to their audiences. The traditional news values of prominence, importance, relevance, significance, etc. may give great advantage to a national leader in this respect. Surprisingly, in their study of President Carter's Second State of the Union address, they found this not to be the case. It also is clear in this study that the media exerted great influence on Kennedy prior to and during his tenure in office as to what issues his Administration would define as important and choose to deal with via regulation, legislation and policy implementation. Thus, the source-media interaction of mutual influence is very complex and, over a period of historical examination, may be reciprocal or transactional.

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TABLE 1

SPACE TECHNOLOGY AND EXPLORATION TOPICS

DISCUSSED BY NEWSPAPERS, PRESIDENTIAL PRESS CONFERENCES

Topic	Press Conference (N=11)		Newspapers (N=375)	
	Pct.	Rank	Pct.	Rank
USSR Space Achievements	54.6	5.5	63.5	1
US Space Program	63.6	3	56.8	2
Satellites	18.2	9.5	42.4	3
Space Competition	63.6	3	36.3	4
Uses of Space	45.4	7	26.7	5
Moon Project	63.6	3	21.9	6
Military Applications	54.6	5.5	21.1	7
Costs	27.3	8	20.0	8
Space Cooperation	72.3	1	16.8	9
Congressional Legislation	18.2	9.5	10.4	10

Kendall rank correlation coefficient (tau) = +.09. Probability, one-tailed test = .36.

TABLE 2

DOMINANT CATEGORIES SPACE TECHNOLOGY AND EXPLORATION FEATURED IN NEWSPAPERS, PRESIDENTIAL PRESS CONFERENCES

Topical Categories	Press Conference (N=11) Pct.	Rank	Newspapers (N=371) Pct.	Rank
USSR Space Achievements	0.0	7	32.3	1
US Space Program	9.1	3	16.2	2
Space Competition	36.4	2	14.8	3
Space Cooperation	54.5	1	7.8	4
Satellites	0.0	7	7.5	5
Moon Project	0.0	7	7.0	6
Uses of Space	0.0	7	4.6	7.5
Military Applications	0.0	7	4.6	7.5
Congressional Legislation	0.0	7	3.2	9
Costs	0.0	7	1.9	10

Kendall rank correlation coefficient (tau) = +.37. Probability, one-tailed test = .07.

TABLE 3

MOTIVES MENTIONED FOR SPACE TECHNOLOGY AND EXPLORATION,

NEWSPAPERS AND PRESIDENTIAL PRESS CONFERENCES

Motives	Press Conference (N=11)		Newspapers (N=375)	
	Pct.	Rank	Pct.	Rank
National Prestige	45.4	2	51.7	1
Scientific Observation and Experimentation	36.4	3.5	43.7	2
Practical, Non-military Applications	27.3	5	28.3	3
National Security	54.6	1	20.5	4
International Cooperation	36.4	3.5	15.5	5

Kendall rank correlation coefficient (tau) = +.11. Probability, one-tailed test is not statistically significant.

TABLE 4

DOMINANT MOTIVE MENTIONED FOR SPACE TECHNOLOGY AND EXPLORATION, NEWSPAPERS AND PRESIDENTIAL PRESS CONFERENCES

Motives	Press Conference (N=11)		Newspapers (N=375)	
	Pct.	Rank	Pct.	Rank
National Prestige	27.3	2	37.6	1
Scientific Observation and Experimentation	9.1	4.5	23.2	2
Practical, Non-military Applications	9.1	4.5	14.1	3
National Security	36.4	1	10.7	4
Other	0.0	6	7.5	5
International Cooperation	18.2	3	6.7	6

Kendall rank correlation coefficient (tau) = +.14. Probability, one-tailed test is not statistically significant.

TABLE 5

NEWSPAPER PLACEMENT AND EXTENT OF COVERAGE

FOR ARTICLES MENTIONING SPACE COOPERATION AND SPACE COMPETITION

	$\bar{X}$	SD	T-Value	DF	Probability Two-Tailed
Page Number					
Space Cooperation Mentioned	9.08	10.12			
			0.65	370	0.514
Space Cooperation Not Mentioned	9.98	9.01			
Article cm					
Space Cooperation Mentioned	272.53	191.16			
			-2.12	365	0.035
Space Cooperation Not Mentioned	216.06	191.92			
Page Number					
Space Competition Mentioned	8.64	8.91			
			1.82	312.73*	0.07
Space Competition Not Mentioned	10.50	10.43			
Article cm					
Space Competition Mentioned	295.41	194.58			
			-5.52	365	.000
Space Competition Not Mentioned	184.98	179.05			

* Separate Variance Estimate

$\bar{X}$=mean; SD=standard deviation; DF=degrees of Freedom.

APPENDIX A

KENNEDY SPACE-ISSUES STUDY
CONTENT ANALYSIS CODING INSTRUMENT

	Column
Item number	1-3
Date of Press Conference	
Month (Jan. = 01; Dec. = 12)	4-5
Day	6-7
Year (last two digits of year)	8-9
Newspaper	
1 = Christian Science Monitor 2 = New York Times 3 = Wall Street Journal	10
Date of Newspaper	
Month (Jan. = 01; Dec. = 12)	11-12
Day	13-14
Year (last two digits of year)	15-16
Section of Newspaper	
1 = A 2 = B 3 = C 4 = D 5 = E 6 = F 7 = G 8 = H 9 = Magazine	17
Page of Newspaper	18-20
Newspaper Item Analyzed is:	
1 = hard news 2 = feature 3 = news feature 4 = editorial 5 = column of opinion 6 = letter to the editor 7 = editorial cartoon 8= other	21

	Column
Story Size in cm (include heads, exclude artwork)	22-24
Artwork Size in cm (include captions)	25-27

Headline (please print)_____

_____

Source of Newspaper Item:

1 = staff person
2 = Associated Press
3 = United Press International
4 = other wire service
5 = special or freelance contributor
6 = other — 28

Which of the following topics were mentioned/can be inferred in the newspaper item analyzed?
(1 = not mentioned; 2 = mentioned)

(01) US space efforts	29
(02) USSR space efforts	30
(03) US-USSR space cooperation	31
(04) US-USSR space race	32
(05) Uses of space	33
(06) Satellites	34
(07) Moon project	35
(08) Space legislation in Congress	36
(09) Space/military issues combined	37
(10) Space costs	38

From the above list, choose the number which best corresponds to the dominant topic mentioned/inferred in the newspaper item analyzed: 39-40

Which of the following items were mentioned/can be inferred in the newspaper item analyzed as being motivations for the space program? (1=not mentioned; 2 = mentioned)

(1) National prestige	41
(2) National security	42
(3) Scientific observation and experimentation	43
(4) Practical non-military application	44
(5) International cooperation	45

From the above list, choose the number which best corresponds to the item mentioned/inferred in the newspaper item analyzed as being the principal motivation for the space program: 46

Column

Which of the following topics were discussed at the Kennedy press conference? (1 = not discussed; 2 = discussed)

(01)	US space efforts	47
(02)	USSR space efforts	48
(03)	US-USSR space cooperation	49
(04)	US-USSR space competition	50
(05)	Uses of space	51
(06)	Satellites	52
(07)	Moon project	53
(08)	Space legislation in Congress	54
(09)	Space/military issues combined	55
(10)	Space costs	56

From the above list, choose the number which best corresponds to the dominant topic discussed at the Kennedy press conference: 57-58

Which of the following items were mentioned/can be inferred at the Kennedy press conference as being motivations for the space program? (1 = not discussed; 2 = discussed)

(1)	National prestige	59
(2)	National security	60
(3)	Scientific observation and experimentation	61
(4)	Practical non-military applications	62
(5)	International cooperation	63

From the list above, choose the number which best corresponds to the item mentioned/inferred at the Kennedy press conference as being the principal motivation for the space program: 64

The subject matter in the newspaper item analyzed is:

1 = exactly the same as that in the press conference
2 = mostly the same as that in the press conference
3 = somewhat the same as that in the press conference
4 = mostly dissimilar to that in the press conference
5 = completely dissimilar to that in the press conference 65

In the treatment of the subject matter in the newspaper item analyzed:

1 = a bias is not perceptible
2 = a bias is perceptible 66

Column

The bias in the newspaper item analyzed is:

1 = exactly the same as Kennedy's position as presented in the press conference
2 = mostly the same as Kennedy's position as presented in the press conference
3 = somewhat the same as Kennedy's position as presented in the press conference
4 = mostly dissimilar to Kennedy's position as presented in the press conference
5 = completely dissimilar to Kennedy's position as presented in the press conference
8 = question does not apply as no perceptible bias was seen in the newspaper item analyzed — 67

Was the date of the newspaper analyzed dated before, on, or after the date of the press conference?

1 = before
2 = after
3 = on — 68

Was the date of the newspaper analyzed dated before, on, or after May 25, 1961?

1 = before
2 = after
3 = on — 69